

The Canadian Builder-Carpenter

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Canadian Furniture World and The Undertaker, The Retail Grocer and Provisioner,
Canadian Hardware Journal, The Retail Druggist of Canada,

THE Canadian Victory Loan

Patriotism

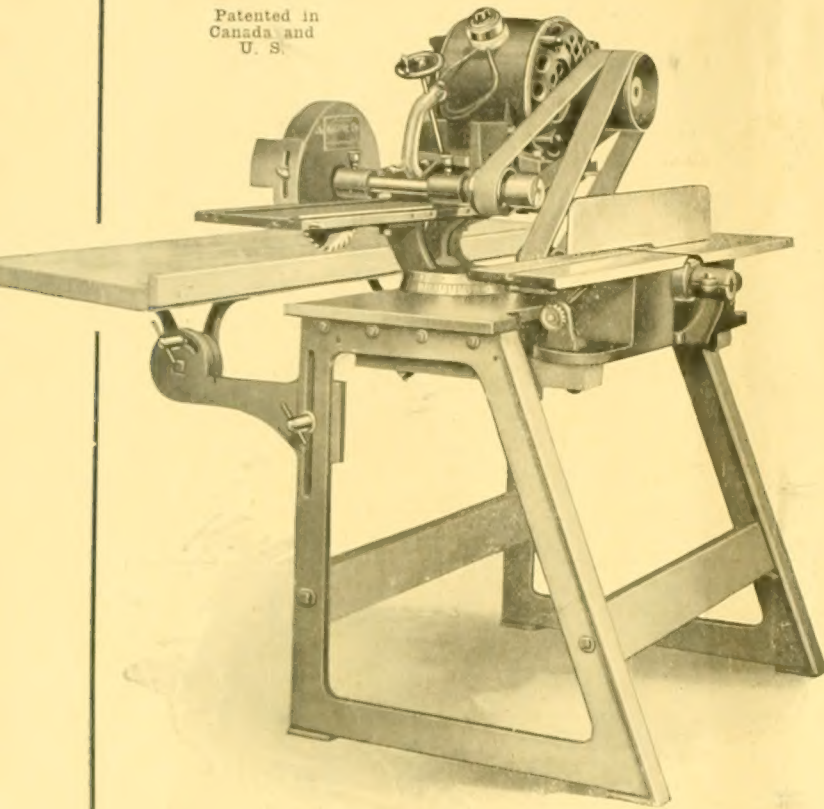
Demands your best efforts to make the Canadian Victory Loan a success, because Canada needs the money to continue doing the big work she is now doing towards winning the war.

Business Conditions

Demands your help to the uttermost. The Loan will enable Canada to finance the purchase of food and munitions for Great Britain. This will mean greater activity in manufacturing and transportation, and, because labor is more freely employed, will mean better trade for all classes of merchants. Every hundred dollar bond bought helps to make total bigger. Do what you can and induce your customers to do the same.

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Builders and Carpenters

The No. 4 Woodworker is the most complete and satisfactory woodworking machine in Canada. It combines lightness and adaptability with great strength, and always gives satisfaction.

This machine is a wonder, and will save \$30.00 on every \$100.00 labor cost.

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250 of these machines have been sold in Toronto, and the same number in Detroit, besides hundreds in other cities. The United States Government has recently placed three in the Norfolk, one each in the Brooklyn and Newport News Navy Yards, and in the West Point Military Academy.

This is a fine record for a Canadian machine.

Elliot Woodworker, Limited

Corner College and Bathurst Sts., Toronto

NEPONSET Paroid ROOFING



There must be a pretty good reason why people who want a *lasting* roof are willing to pay a few dollars more for Neponset quality.

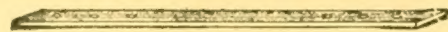
Figure it out for yourself. Write for prices, etc.

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HAMILTON, ONTARIO

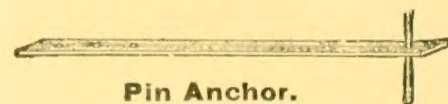
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Tie Bar.



Bolt and Strap Anchor.



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We specialize in general builders' ironwork and have unequalled facilities for quick, first-class execution and prompt delivery of

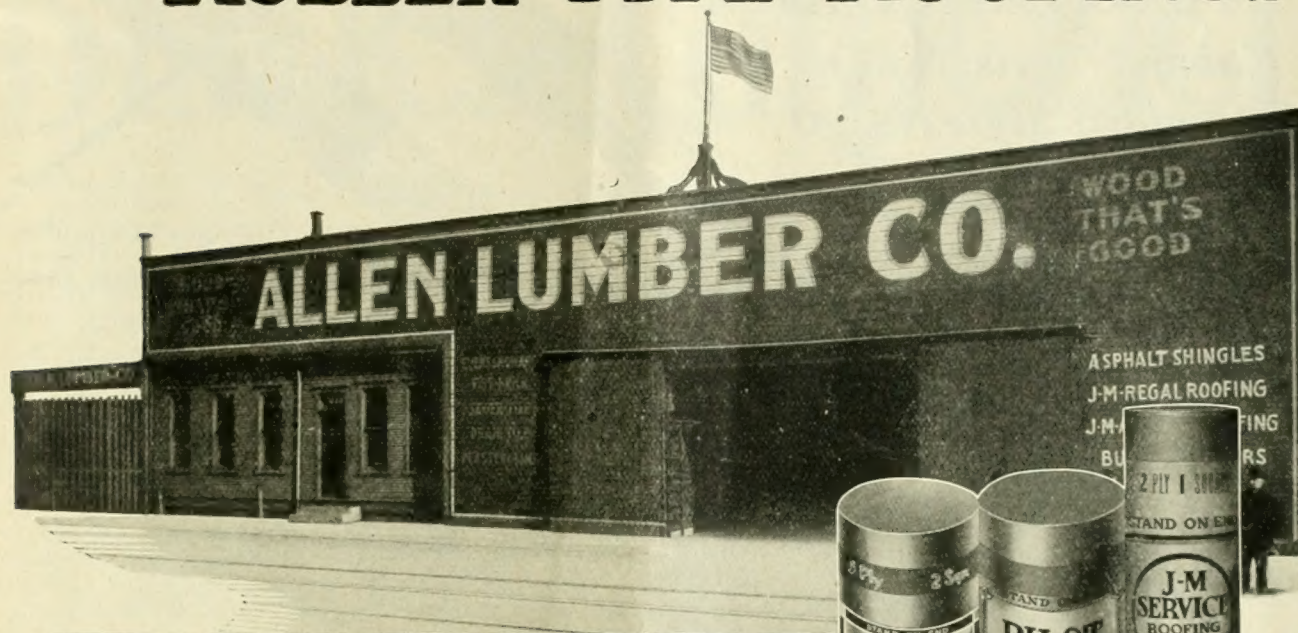
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| Area Gratings | Marqueses | Bolts and Anchors |
| Sidewalk Doors | Fire Escapes | Steel Beams |
| Window Guards | Stairways | Lintels |
| Wheel Guards | Spiral Stairs | Pipe Railing |
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Write for illustrated literature.

THE DENNIS WIRE AND IRON
WORKS CO. LIMITED
LONDON
CANADA



JOHNS-MANVILLE RUBBER TYPE ROOFINGS



Satisfy customers and build up better business

To the dealer who has the stock, the growing demand for "rubber-type" roofings means big money. And roofings that sell readily on their merit, and stay sold on their service, are the roofings that land the cream of the business.

These are conditions that the Johns-Manville line completely fulfills. The dealer who ties up with Johns-Manville can figure on every job that comes up, for the line includes types of roofing for every requirement of service and price. And to the selling value of the roofing itself is added the backing of an institution continent-wide in scope, which vouches for the service of its every product. This, too, is a genuine sales argument.

We make three grades of "rubber-type" roofings:

Regal Brand — made of high-grade selected wool felts and a combination of natural asphalts, processed in our own plants. Contains more waterproofing material per square than any other rubber roofing.



Service Brand—an excellent roofing for somewhat lighter service and at a lower cost.

Pilot Brand—made of cheaper materials, but designed to give a maximum of service for the money invested.

These three fabrics are made, from beginning to end, in our own mills. Carried in your stock, they mean bigger business for you—and business on a better basis. Let us give you further facts about our sales plan.

We recommend the application of these roofings with the **Johns-Manville Roofing Clamp**.

This clamp is a strip of special alloy galvanized metal that exerts a continuous pressure all along the seams of the ready-to-lay roofing. Laid with these clamps, the sheets of the roofing are firmly held against wind pressure and leaks. The use of sticky, smeary cement on "rubber-type" roofing is unnecessary with these clamps, and the roofing is more easily and quickly applied.

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED

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They cannot loosen in the handle, in use or abuse. You have our guarantee.

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They are as durable as the high-grade steel that composes them, and will render faithful service for generations. The comfortable handle and various lengths of blades make them suitable for all classes of work.

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We have an Engineering Dept. at your service.

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THE "PEACE" PATENT IMPROVED METAL WEATHER STRIP FOR WINDOWS AND DOORS

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This is a reminder to read ALL the advertisements in The Canadian Builder and Carpenter every month.

The Canadian Builder and Carpenter

D. O. MCKINNON
GENERAL MANAGER

Published by The Commercial Press, Ltd., 32 Colborne St., Toronto, Ont.

G. C. KEITH, M.Sc.,
EDITOR

VOLUME 7

TORONTO, NOVEMBER, 1917

NUMBER 11

Canada's "Victory" War Loan

Every reader of this paper owes it to the Allies, to Canada, and to himself, to make the Fourth Domestic War Loan a success.

He owes it to the Allies, for success in this war demands that every country engaged contribute in men, in munitions, in foodstuffs and in financing to the maximum of its power.

He owes it to Canada because the good name of the Dominion is at stake. Until now Canada has done wonders, far beyond what was thought possible: in the number of men sent overseas; in the extent to which she has made munitions; and in the degree to which she has financed herself through this trying period. If Canada is to continue making munitions as she has been doing; if she is going to make conscription effective and keep an adequate number of men engaged in France, this loan must be made a success.

He owes it to himself as a business man because it will mean a continuance of the agricultural and industrial activity that has existed for many months, which has meant prosperity in the country and better business for all retailers, wholesalers and manufacturers.

How can the average business man help to make this loan a success?

First, by buying the bonds as freely as he can.

Second, by influencing his customers to do so.

Remember, this loan will yield practically as much in interest as he can get with any safe investment—and all the taxable wealth of Canada stands as security behind the loan. In case of sudden need the bonds can be sold, or may be deposited in the bank as security for a loan.

Your plain duty lies before you.

✱ ✱

Talk "Victory Loan"

The average retailer is on such terms of intimacy with his customers—or a large number of them—that he can without giving offence, say to any of them:

"Well, Mrs. Smith, I trust you are buying some of the Victory Loan bonds?" or

"Have you bought your Victory Loan bonds yet, Mrs. Jones?"

To do this the retailer should understand the loan—should know why it is being asked for; why it is needed; what the rate of interest is to be. Therefore, between now and the time the loan is issued, every

retailer should make a study of the issue; should read carefully the advertisements announcing it, and be in a position to answer questions concerning it.

✱ ✱

War Savings Stamps to be Issued

The Canadian Government has in preparation the issue of war savings stamps. They will be used in connection with a plan to interest those who are able to save only in small amounts in the purchase of war savings. Special war savings cards will be issued with squares upon which the stamps purchased from time to time may be placed. When all the squares are filled, the card will be taken to the post office and exchanged for a war savings certificate. The stamps will be in the denomination of 25 cents, and the cards will contain spaces for 34 of them and one 10 cent postage stamp, (making altogether \$8.60) and when filled will be exchanged for a certificate entitling the holder to \$10.00 at the end of three years. A similar idea was in practice in the United Kingdom many years ago in peace times, and was used particularly by the working classes and school children. Forms were issued with 12 squares upon which penny stamps were affixed. The completed forms were turned into post offices and the amount credited to post office savings bank account.

"If you have a bit of news,
Send it in;
Or a joke that will amuse,
Send it in.
A story that is true,
An incident that's new,
We want to hear from you!
Send it in.

Will your story make us laugh?
Send it in.
Send along a photograph,
Send it in.
Never mind about your style,
If it's only worth the while,
And will make the reader smile,
Send it in."

—Exchange.



Residence of J. H. Fussell, Oakmount Road, Toronto.

SUNSHINE *a* FEATURE *of* THIS HOME

Architects:

Eden Smith & Son

AN endeavor to take advantage of the southern exposure was made in designing the house illustrated herewith. This is the residence of J. Harry Fussell, situated on the east side of Oakmount Road, Toronto.

The dining room on the southeast corner receives the benefit of the morning sun.

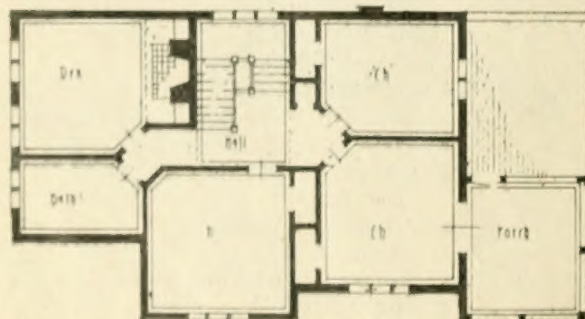
The interior finish of the house is simple.

The best materials obtainable were used throughout.

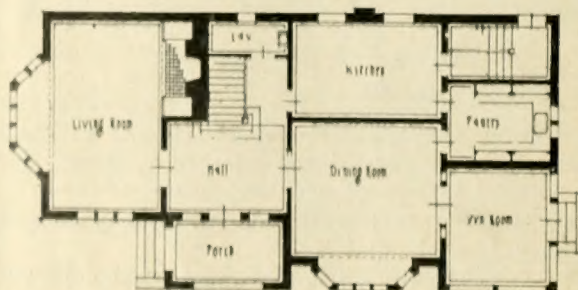
The ground floor is stained. The bedroom floor is finished in white enamel throughout.

As will be seen from the plans, an excellent layout has been obtained with no waste space.

At the rear is a garage designed in the same style as the residence.



Bedroom floor plan of J. H. Fussell's residence.



Ground floor plan, J. H. Fussell's residence, Toronto.

FAST CONSTRUCTION of CONCRETE HOUSES

One hundred dwellings erected at the rate of one every three days by using special forms and small concrete mixers.

Published by courtesy of Engineering News-Record.

ABOUT one hundred concrete houses are being erected by the American Steel & Wire Co. for their employees. They are of good appearance, and by using methods adopted in large construction, have been completed at the rate of one every three days. The houses were designed by the Lambie Concrete House Corporation, Boston, Mass. The designs are well-standardized and permit rapid construction.

Eight Different Designs of Houses

Eight different designs of houses are being built, containing some four, some five, and some six rooms, all with a bath and cellar. Of these, a few are being built in pairs with party walls, and the rest are all detached. The contract prices for a house complete range from \$2,000 to \$3,000, but such costs are based on prices for some time ago and can hardly be used for present comparison. The costs include gas furnaces and cooking ranges, electric lighting and the usual improved kitchen and bathroom equipment. The average floor area is 26 x 26 feet.

Rate of Progress of Construction Work

The houses are all of the box type with 6 inch solid concrete walls reinforced vertically on both faces and horizontally on the outer face with straight rods, with an intermediate partition wall cutting down the floor space to 12 to 15 ft. The floors are of the ribbed reinforced concrete type, with the ribs or beams spanning between the outer and interior walls. These ribs are left exposed in the cellar, but in the other floors plaster board is nailed to strips left in the concrete and a finish plaster coat is made. The buildings are finished at the top with a reinforced concrete cornice in which a gutter is formed, and on top of the concrete ceilings, a roof is built up of spruce framing covered with "asbestoslate" so that the whole of the exterior of the building, with the exception of this frame, the wooden windows, the door frames and the wood stairs, is fireproof.

Special Steel Forms are Used to Advantage

An important factor in securing the fast construction is the use of special steel channel type forms, patented by the Lambie Concrete House Corporation. They consist of 9 in. channels set up vertically and connected together with clips and wedges passed through slotted holes in the flanges of the channels. At the corner of the building a 4x4 in. steel angle is set up, and the forms are set up longitudinally by means of a steel channel used to form a belt course. This not only fastens the forms of the lower floor, but is bolted into the floor reinforcement and remains in place for a support for the second story forms and is only stripped at the last when all the concrete is

poured. The steel wall forms also support the floor forms, which are steel, dome arrangements being made by which the steel channels on which the domes are laid are bolted to the inner side of steel wall forms. The cornice has to be built inside special wood forms supported by wooden struts reaching down to the belt course channel form.

The cellars were excavated with a steam shovel, which went down a street taking up a strip the depth of the houses. The space between the walls of the houses is backfilled after the cellar walls are placed. The digging was in hardpan with some shale, but all of it was removed with the steam shovel.

Moved Forms from House to House

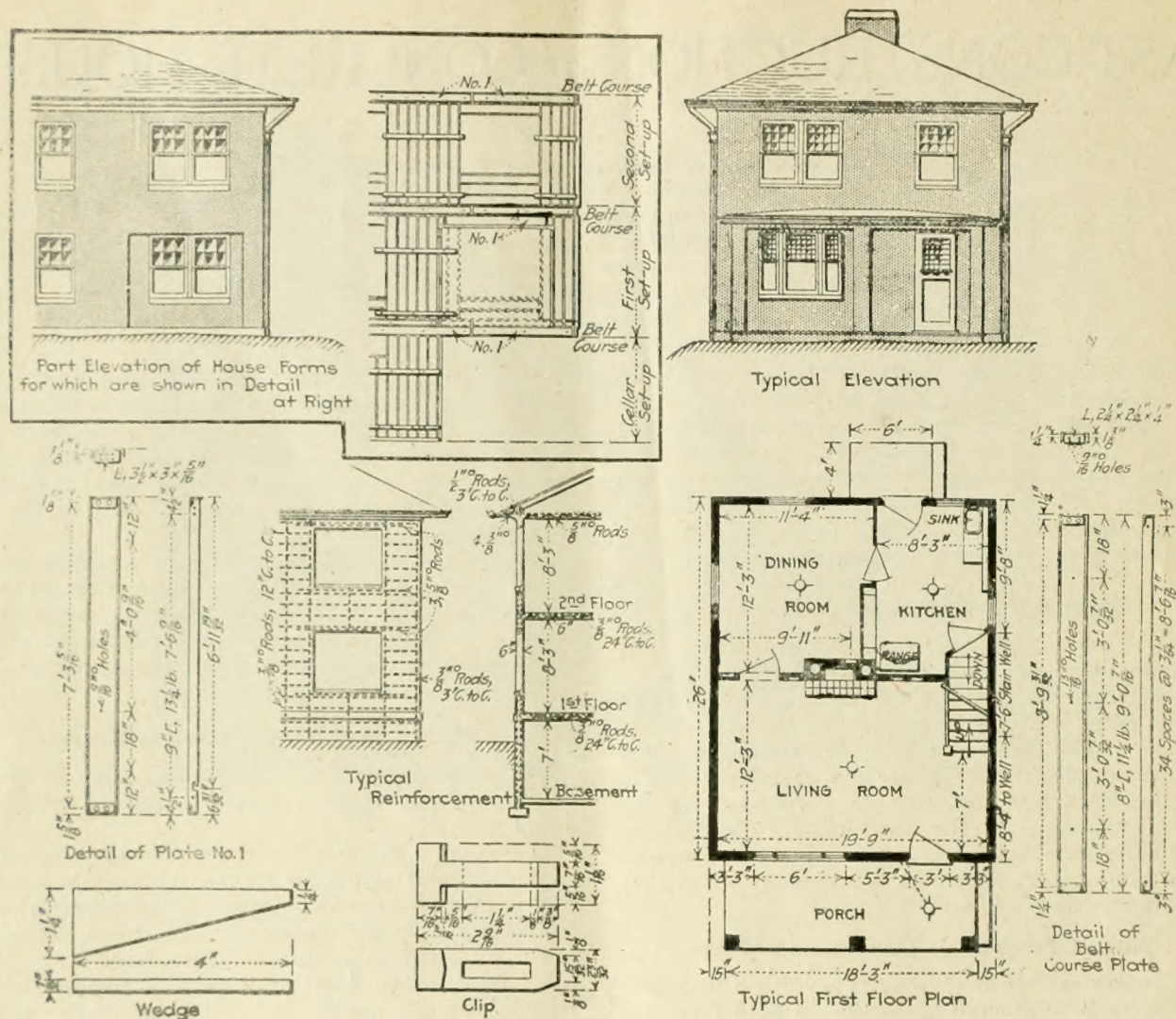
The construction of the houses was done in groups, the forms being removed as soon as possible to the next group.

The usual method is to set the forms of one story (wall and floor together) and then to pour the concrete wall for this section all at once. The progress of the job is limited by the setting of the concrete. To form, pour and strip each storey takes about seven days. The house of two floors and cellar is completely concreted in three weeks, and with the twelve sets of forms on the job, twelve houses are concreted in this period. After this the plumbing, heating, plastering, roofing and finish are done, which take about five weeks more, so that the houses are being completed at the rate of twelve in the first eight weeks and twelve every three weeks thereafter.

During the months of May, June and July, the progress made was as follows: 28 complete houses (counting double houses as one) were concreted in 12½ weeks, or at the rate of a house every three days. In the last month quite a number of houses were concreted very quickly—that is, from the day starting erecting basement wall forms on the footings, to and including the day the roofs were concreted, the last houses have gone up as follows: Two in 13 calendar days, one of which could have been done in 12, except for shortage of sand, 2 in 14 days, 5 in 15 days, 2 in 16 days, 2 in 17 days, 3 in 19 days, 1 in 20 days, and 1 in 21 days. Under ordinary conditions these houses could have been built with one set of forms.

Small Hoists Used in Elevating Material

On the start, concrete was placed from a high stationary tower, with a chute. This proved inefficient, because of the number of moves that had to be made to control the whole housing area. There is so small an amount of concrete in each house, 125 cubic yards on the average, and the houses are so scattered that the cost per yard of concrete was materially increased by the cost of the tower erection and construction.



Plan and elevation of the concrete house and details of the forms used.

After a long study of different methods the building company decided on small mobile concrete mixers, which could be placed alongside each house during concrete placing, and small hoists on each building.

Building Equipment

The plant consists of three one-bag gasoline-driven mixers, two of which are equipped with side loaders, three Sasgen circle swing derricks; two gasoline-driven hoists, which control derrick and mixer. The slag aggregate, and sand, as well as the cement, are delivered to the mixer by means of a truck which brings the material from the contractor's unloading yard, located in the yard of the American Steel and Wire Company.

The Sasgen derrick is not used for pouring the basement and first floor, but is used for all concreting above that. It is bolted securely to the belt course on one corner of the building, and the concrete is hoisted in concrete buggies or wheelbarrows. Better results have been obtained with the buggies than with the wheelbarrows. Each wheelbarrow has a hook bolted to the front end and is lifted by the derrick by means of three steel arms with rings on the ends, two of which hitch to the handles and the third into the

hook on the barrow, so that it is lifted completely and level onto the floor.

Directing the Work

The organization on the job is a superintendent, assistant superintendent, civil engineer, material clerk, two cost clerks, timekeeper, planning department and stenographer. The formwork is under supervision of one carpenter foreman, five squad bosses, two stripping foremen, two move foremen, one reinforcing steel boss, one finish carpentry boss, three concrete bosses and one excavation boss.

It was found advisable to have a squad boss in charge of the carpenters and helpers working on each house. This boss has four carpenters and four helpers on the smaller houses; and on the large double houses, up to seven carpenters and seven helpers. The work has been most economically done when the carpenters and helpers worked in pairs—that is, each carpenter has a helper to assist him in moving the forms, etc. It will be noticed that the reinforcing steel boss comes under the carpenter foremen. This has been found desirable, as the steel must be placed rapidly whenever the carpenters are ready for it. The planning department on the job lays out progress each

day for the next three days and shows which foreman is to erect forms on each house and which concrete gang will pour them.

Number of Men and Rate of Work

The number of men in a concrete gang varies from 13 to 15, according to the type of house and the amount of concrete to be poured. The number of gangs at work at the same time is five carpenter gangs erecting forms, two concrete gangs concreting forms, two stripping gangs stripping forms, one concrete gang concreting footings, pavings, porch floors, floor steps, chimneys, etc., one digging gang, and one finish carpentry gang, doing the furring, roof framing and roof boarding, erecting door and window frames, sash, doors, inside and outside trim, stair laying, floors, etc.

On a large-type six-room house group this force has taken approximately $1\frac{1}{2}$ days to erect basement walls and first-floor forms, including all boxes, window frames, flues, etc. Concreting basement walls takes about $2\frac{1}{2}$ hours, and $1\frac{1}{2}$ hours to pour the floor. Stripping and erecting the basement wall forms on the first storey takes $1\frac{1}{2}$ to 2 days. The stripping of the first-storey walls and erecting the second storey and putting on the floor takes about $1\frac{1}{2}$ days, but the putting on of the cornice is a slower operation and adds from half a day to a day to this. Concreting the walls takes about $2\frac{1}{2}$ hours, and the roof about the same length of time.

Some Detail Costs of Houses

The steel reinforcement varies from $1\frac{1}{2}$ tons in the smallest type of single houses to three tons in the largest type of double houses. The labor on wall steel has cost to date \$11.90 a ton and the floor steel or beam steel \$7.50 a ton. The cost of labor on wall forms to date has been \$4.30 a hundred square feet and the stripping has been \$2.10. This does not include the moving of forms into the lots, which has cost about \$55 per house or about \$1.25 per 100 sq. ft. of wall.

The quantities of concrete per house vary from 145 cubic yards for the largest double house down to 85 for the smaller single houses. This includes all walls and floors, footings, pavings, porches and chimneys. At the present time it is costing about \$2.25 per cubic yard to place the concrete in the first and second-storey walls which are 6 inch walls, and it costs the same for the floor slabs. The smaller houses have about 15 cubic yards of concrete in the first or second-storey walls, and 6 cubic yards of concrete in the first and second floors. The roof, including the cornice, has about 10 cubic yards. The cost of erecting the form-work, including handling, stripping and cleaning, is averaging about 50c per square foot. As no lumber is required for the wall forms, this is doubtless considerably cheaper than work of this class could be done in wood.

The amount of polish which can be given to the surface of concrete depends upon the density of the mixture and the nature of the aggregate used. After the surface has been smoothed down on a rubbing bed, or by use of rotary polishers, as applied in terazzo floor work, the procedure is somewhat similar to that used in polishing granite or marble. The aggregate exposed on the surface by the rubbing process takes the polish, the appearance of the surface being dependent upon the percentage of aggregate exposed.

Helping Along Quick Mail Delivery

Mr. W. B. Rogers, postmaster, at Toronto, pointed out to The Canadian Builder, how business men may aid quick delivery of mail. There is a great advantage to senders by mailing letters and other important mail at the post office in time for despatch by the first available mail closing throughout the day. It is therefore possible, in many instances, for mail to reach its destination in Ontario, the same day as posted, and to advance the despatch of matter for other destinations whereby delivery can be effected early the following day.

The habit of delaying the mailing of letters until the close of the day's business is detrimental to the best interests of business men as well as the postal service. Mr. Rogers therefore suggests that advantage be taken of the earlier closing of mails throughout the day, whereby in many cases, several hours in delivery, and the consequent early response is obtained.

For instance, letters mailed at Toronto can be advanced for certain places by being mailed as early as 11.45 a.m. Other important mails close at 12.25 p.m., 3.15 p.m., 4 p.m. and 4.50 p.m. The most advantageous despatch of matter for Manitoba, Alberta, Saskatchewan and British Columbia is via mails closing at 6.00 p.m., for which matter should be posted at the post office as much earlier than that hour as possible. Registered mail for this despatch closes at 5.50 p.m.

The advantages pointed out by Mr. Rogers are so great that business men generally will see the value of adopting his suggestions.

Do Not Leave Mail on Sidewalk

Another thing pointed out by Mr. Rogers is of importance to business men. It is found that those entrusted with the mailing of letters and other articles of mail are, in many instances, in the habit of placing such items on the top of the street postal receptacles or on the sidewalk contiguous to these receptacles. This is more particularly between the hours of 5 p.m. and 7 p.m.

This practice is most undesirable, not only from the post office department, but it is extremely dangerous for the reason that the matter is exposed to all kinds of weather. It is sometimes found that bundles of letters are knocked into the road and run over by passing vehicles. It is not an uncommon occurrence to have letters and other pieces of mail brought in which bear evidence of having been tampered with, such as having been opened or having the postage stamps torn off.

In such cases it is understood that the messenger boys are placing this important matter on the thoroughfare or on the top of mail boxes without the knowledge of their employers or managers of the concerns referred to and that it is only necessary to draw their attention to the fact to see that large quantities of matter is mailed at the general post office or at a postal station, particularly when sent out by concerns whose places of business are a short distance from the post office.

More Luck Than Science

"That green carpenter didn't do such a bad job with the Jones house."

"No, he builded better than he knew."

Specifications for Waterproofing

In light of the interest displayed in all suggestions on the subject of waterproofing, the following from a recent issue of the American Roofer is likely to be appreciated:

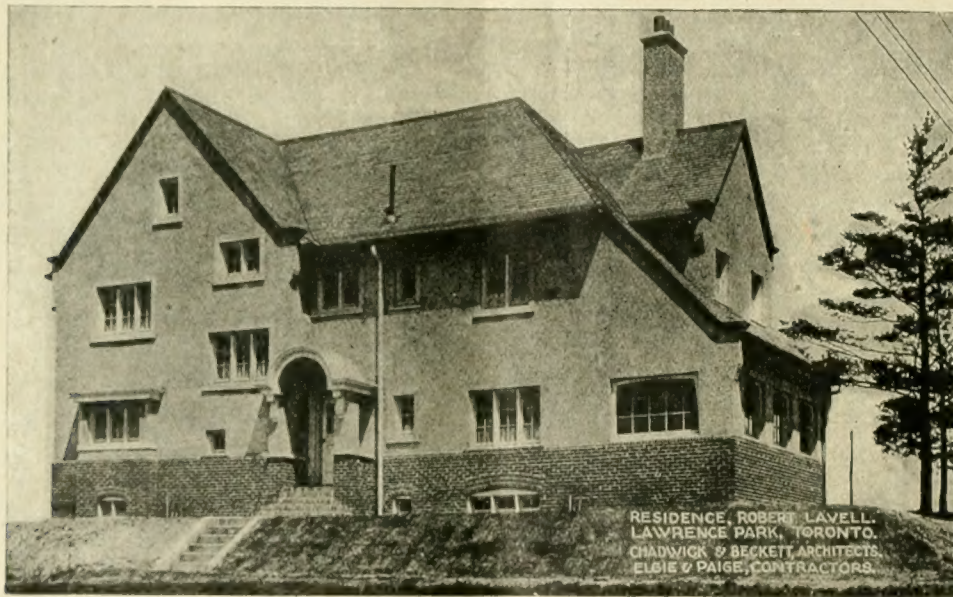
All waterproofing shall be on the water pressure side of the masonry. The surface of all masonry upon which the waterproofing is to be applied shall be smooth and dry.

Coat the entire surface on which the waterproofing is to be applied with special waterproofing pitch, into which, while hot, embed a layer of special felt, following this with alternate moppings of pitch and layers of felt until six moppings of pitch and five layers of felt have been applied. Each ply of felt shall be thoroughly rubbed into the hot pitch. There shall be

Waterproofing Cement Brick Wall

Will you give me a receipt for a solution to apply to a brick wall to make it water proof? The bricks are made of cement, lime and sand and absorb a good deal of water during the wet season in British Columbia.

Ans.—When clean and dry the walls may be coated with a preservative; one of the commonest being boiled linseed oil, which applied in two coats, and, when dry, washed over with weak ammonia, will be effectual for two or three years before needing renewal. Lead and oil paint is sometimes used, but is objectionable, as it changes the color of the masonry, and also flakes off. Brick preservatives are used to waterproof brick and sandstone, and are effectual where the heart of the wall is kept dry. Sylvester's process, which has proved quite successful, and is simple in preparation



Residence of Robert Lavell, Lawrence Park, Toronto, Chadwick & Beckett, architects. Elgie & Paige, contractors. Tile furnished by the Sun Brick Co., Toronto.

no pockets or blisters and in no place shall felt touch felt.

At all wall angles footings and places where the waterproofing will be subjected to unusual strain, there shall be applied one layer of tar and an additional mopping of pitch, or at least two extra layers of felt and moppings of pitch.

Where laps are left to be connected after other work is completed, they shall be not less than ten inches wide.

If waterproofing is applied from the interior to the protection walls, it shall be held in place until the foundation wall is constructed.

If waterproofing is applied from the exterior to the foundation walls, it shall be immediately protected by brick, concrete, hollow tile or similar material.

In either case there must be a continuous course of at least one-half inch of cement against the waterproofing, in order to protect the same from being punctured.

On horizontal surfaces the waterproofing shall be temporarily protected by one inch of cement mortar immediately after the felt and pitch are applied.

The number of plies of felt and moppings of pitch required depend upon the head of water to be excluded.

and application, consists of two washes, the first being made of Castile soap and water, in the proportion of $\frac{3}{4}$ lb. of soap per gallon of water, and the second of $\frac{1}{8}$ lb. of alum per gallon. The soap wash is applied, boiling hot, with a brush, to the clean and dry walls and allowed to dry 24 hours before the alum wash—which need not be hot—is put on in the same manner. The coats are applied alternately two or three times, making the wall practically impervious.—A. A. G.

“Hit the Trail”—Buy a Victory Loan Bond

Process of Casting Plaster of Paris

A recently patented process for making articles of plaster of paris consists in coating the mold with a compound composed of equal parts of stearic acid and linseed oil diluted with a suitable thinner. The object of using this compound is to prevent sticking of the plaster to the sides of the mold. After the coating has been applied, the plaster, mixed to the proper consistency with water, and colored by the addition of any desired coloring matter, is poured into the coated mold, to be immediately poured out again.

This process is repeated until the desired thickness of the shell of plaster is attained, thus producing a hollow casting which is removed after hardening.

“Hit the Trail”—Buy a Victory Loan Bond



Carpentry and Woodworking



Business for Builders Out of Fire Losses

It would be rather interesting to know how many builders there are in the Dominion who make a systematic practice of keeping a record of fire losses in their respective neighborhoods with a view to securing jobs for replacing damages or constructing new buildings to replace those destroyed. It may be that there are a large number who do so. And again it is safe betting that the number relatively is few.

Fire losses per capita are heavier in Canada than in any other country in the world. At any rate they were a year or two ago, and while the gospel of fire prevention is being vigorously preached by certain organizations, it is hardly likely that it has secured sufficient reformation to give the Dominion a place among the A1 class countries.

Although it is perhaps something one should not boast about, yet facts are facts. And one outstanding fact is that Canada, on account of her heavy fire losses, is a sort of paradise for the builder who will make it a habit of getting into touch with owners whose buildings have been either damaged or destroyed by fire.

Take the Province of Ontario by way of example. The figures issued by the fire marshal show that during the first seven months of the year there were no fewer than 5,691 fires with an aggregate loss of \$6,449,435. All this loss was not of course on buildings, but a goodly portion undoubtedly was. At any rate there were few fires which did not make some work for the builder.

To evolve a system whereby a tab could be kept on fires which occur, would not entail a great deal of labor. It would be necessary to watch the newspapers for reports of fires and keep a record of the same. A builder need not burden himself with the details of doing this. It can be delegated to a stenographer, a junior clerk, or in the event of his business being of such a nature that he employs neither, to some one in his home.

With information regarding a fire in his possession, the next thing is to get in touch with the owner of the property. The best way of doing this, if it is at all possible, is by a personal call. Where that is not possible, a letter may serve the purpose.

After getting in touch with insurance men, the next thing to do is to get in touch with the owner of the property. The best way of doing this, if it is at all possible, is by a personal call. Where that is not possible, a letter may serve the purpose.

It is a well known fact that by being in touch with the owners of the kind mentioned, the builder secures his connections and enhances his business.

In the building industry as in ordinary business, it is systematic and persistent effort that produces results.—By William Lewis Edmonds.

“Hit the Trail”—Buy a Victory Loan Bond

Beauty in House Design

Mr. H. W. Smith believes that our technical schools can help to promote beauty in house design by offering the students examples of good taste. In the following article Mr. Smith may be a little hard on the builder in his effort in favor of manual training in schools, but if his remarks aid in a closer study of good taste in house construction, the time in preparing the article will have been well spent.

The following are Mr. Smith's observations:

My proposition briefly is this: that I believe it to be an indispensable part of a moderate education to be led to appreciation of the beautiful in architecture, and to understanding of the useful. Further, I think there is no more suitable lesson wherein to inculcate this appreciation and understanding than the hand work lesson. The connection between architecture and educational handwork is sufficiently obvious. Other connections may, of course, be set up. I, myself, have given an example of the connection with literature, in dealing slightly with three sonnets of Wordsworth's:

“We have all to live in houses. Some of us have had houses bequeathed to us; some have had houses built for them; most, I suppose, are mere tenants of other people's houses.”

However we came by our houses, we have to occupy them, and, generally, not less than a fourth of our incomes is the price of the privilege. For our own sakes, therefore, as well as for the sake of the community, we ought to understand the construction of our dwellings, and be able, also, to appreciate, if not the beauty, the ugliness of them. Think how much the health and even the lives of those dear to us and dependent upon us are imperilled by ignorance of the proper drainage of a house; think how often a nicely decorated room is spoilt by damp which might have been prevented if we knew something of gutters and down pipes; think that not seldom does innocent paterfamilias utterly shatter the coherence of a lath-and-plaster partition in his attempts—like Uncle Podger—to hang a picture.

If it does not strain you unduly to think a little further, think how much the ordinary householder is at the mercy of a carpenter or plumber, who is looking less for an odd job than for a small job which can be magnified into a big one.

In passing, I will interject that I believe there to be quite as much honesty in the building trade as in most other trades, and this, notwithstanding the way

to which most homeowners offer easy inducements to fraudulent practices.

Think, too, of the ordinary man buying a house and marvel at the mercies of an over-ruling Providence which sometimes allow him to make a good bargain. As for the man who has a house built to order, he must commission an archangelic architect, and give the contract to a beautiful builder, and even then I doubt if his house will satisfy him completely, or whether he will not wish that he had given the job to someone else by the time the slates are on.

Our pupils should be educated sufficiently in these matters to "go one better" than their parents before them. And rest assured that when they know of something better, they will demand something better. They will not be contented with a house in a row of a hundred others all to the same design, and that an atrocious one. And they will not, when they get a well-designed house, do anything to mar that design.

I saw a house the other day, a pleasing example of the Georgian style in which Hampstead is rich, and its owner had ruined the whole aesthetic scheme by putting over his front door a little cast-iron verandah thing, which looked as if he had "prigged" it from a dilapidated pier pavilion.

All architecture is in the nature of a public trust. We have no right to offend our neighbors' eyes by anything that we build; and we have a right to protest against our own eyes being similarly offended. I do not suppose it will ever be lawful, or even expedient, to issue injunctions at everybody's behest and to comply with everybody's taste. But we can go to the root of the matter in our schools, and in the handwork lessons offer examples in good taste and of sound construction, as well as give a certain amount of actual instruction in elementary building theory and even practice, which will enable our children, some day, to live in their houses a little more wisely, and perhaps happily, than their parents are doing.

An Inexpensive Sun Parlor

A very inexpensive sun parlor has been recently added to a suburban home by inclosing with glass a small second-story bedroom porch, the only furnishings of which are a cot, a small drop-leaf kitchen table and one comfortable willow armchair, says Virginia Earle in the Philadelphia Public Ledger. If there is any porch already a part of your home all or part of which can be inclosed with glass for use in winter months, or if you can possibly afford to build out from some room, in the event that you have no porch, a really-truly sun parlor, you are robbing yourself and your family of one of the greatest delights of a home if you fail so to do. If you are planning to build a home and omit from your scheme some kind of a sun parlor or glass-inclosed porch, that is truly a sin.

Buy a Victory Loan Bond

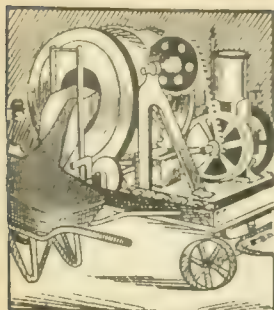
Building is Brisk in Toronto

Notwithstanding that this is the third year of the war, the building permits for the first ten months of the year, for Toronto, show an increase of more than three-quarters of a million dollars. Permits so far issued this year amount to \$6,375,079 and last year they amounted to \$5,504,797. In October 513 permits were issued for buildings valued at \$786,225.

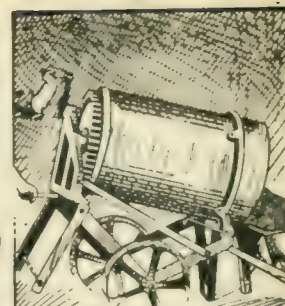
Buy a Victory Loan Bond

The new Allen Theatre, Toronto, built of "Denison" tile made by the Sun Brick Co., and "Rug" brick made by Milton Pressed Brick Co., is being much admired. The building scaffolding has been removed and the interior work is being proceeded with as rapidly as possible. It will rank among Canada's most beautiful movie theatres.





Concrete Department



Proportioning Concrete*

In correctly made concrete the amount of sand should be just sufficient to fill the voids in the coarse material, and the amount of cement just sufficient to fill the voids in the mixture of sand and coarse material and to coat all the particles with very thin jointing layers. It is a rational assumption that such concrete will give a maximum strength with the minimum of cost, and if such assumption be justified by experimental results it follows at once that the proportioning of concrete-forming materials is of the utmost importance. Greater strengths can be obtained by the use of excess of cement as in the case of the ordinary mix of 1:2:4, but the increase in strength is less than the increase of cost of materials, and is therefore only justified in particular cases.

The strength of any concrete will depend not only upon the materials and their proportions, but also upon the method of using those materials. Any void in a mass of $\frac{3}{4}$ in. coarse material may be filled in many ways. First, it may be filled with cement and sand mortar as in the 1:2:4 concrete; secondly, it may be filled with a piece of stone which practically fills the whole space; and, thirdly, it may be filled with a number of stones which vary in size with a minimum amount of cement and sand mortar shown in black. The first filling is composed almost wholly of joints, and on that account is weak; the second filling is strong, owing to the absence of joints, but it is impracticable; but the third is a compromise which is not only impracticable, but also strong. It will be seen that the amount of the variations in size or the grading will depend upon the nature and quality of the work required. On the one hand there will be good but costly filling, and on the other, a cheap but still good filling, and whether the gradation be large or small the filling will be better than one of cement and sand mortar only.

Series of Experiments Drawn Up

With a view to testing the effect of "proportioning" upon the strength and other properties, and also the cost of concrete, the authors drew up a series of experiments the intention being to test compressive strength, modulus of rupture, specific gravity, water content, and air content. Various difficulties arose in the course of the work which not only prevented the work being presented at the original date, but also prevented the use of specific gravity, water content, and air content tests. The series of experiments which must be added others were made, and the results and success of the work could not be tested in the usual manner. The work was carried out in a patent mould in Mr. D. S. Sargent's which gives re-

sults to one-fifth of 1 per cent., and which was found to be independent of the observer. The preliminary data comprised tests on Portland cement, size of granite chips, volume of chips per batch, percentage volume of voids in chips, sizes of river sand used, volume of sand used per batch, percentage volume of voids in sand, and the volume of cement used per batch. Regarding the latter item, it must be noted that no allowance was made for the excess cement required for jointing, only the amount required to fill the voids being used. Had time permitted it, the correct allowance in each case would have been ascertained and additional tests made therewith. The limited time made it impossible to test the cement before using it for the concreted test pieces, the brand only suggesting its probable good qualities.

The batches were hand mixed by engineering (senior honors) students, and as no special means of testing the thoroughness of the mix were adopted the resulting concrete will probably compare favorably with machine-mixed so far as uniformity of results go. Every care was exercised, however, in the mixing to get all the materials thoroughly inter-mixed and apparently uniform. This proved to be the case when the specimens were tested. The moulds were made of planed boards, bolted together with gangs, damped before using, and lined with paper on the underside to facilitate removal. In spite of this, several pieces were damaged in removal, due more particularly to the relatively small sections used. Immediately after mixing, the moulds were filled and left in a tool shed till required for testing. They were wetted regularly every three or four days.

Ratios, Compressive and Tensile Strength

It was found that the ratio of compressive to tensile strength varied more in the one-month than the three-month tests, and is not sufficiently uniform to base any conclusions upon beyond the fact that such ratio is not constant. It is considered by the authors, however, that this ratio should be more or less constant, as the failure, whether compressive or tensile, depends upon the adhesive strength of the cement.

The ratios strength at three months to strength at one month were more or less uniform, more particularly in the case of compressive strengths. In the case of 1:2:4 concrete the modulus of rupture appears to increase more rapidly than the compressive strength, while in the other series with cement accurately proportioned the compressive strength increases more rapidly than the modulus of rupture. At least in six series only one run the other way, probably due to rather dry mixing of those three-month test pieces.

Although the cement tests are unsatisfactory, it will be possible to compare the strengths and costs of the concrete in the different series, as they will probably all be affected to the same extent. The most important

point brought out by such comparison is the fact that cost of cement
 of accurate proportions the ratio $\frac{\text{total cost}}{\text{total cost}}$ is
 practically constant for all gradings taken in the tests, so that when the graded coarse materials are used the total cost need only be further considered. Of course, the total cost is always the final criterion as regards economy, and it may be suggested that the ratio cost of cement to total cost need not be considered. But the relative values of total cost obtained may be altered when additional tests are made at other ages, and it is difficult to say whether they will be affected by the ratio, so that if it can be shown conclusively that this ratio is constant or nearly so the total cost, age, and proportions need only be dealt with.

Buy a Victory Loan Bond

Wear Tests of Concrete

Professor D. A. Abrams, of Lewis Institute, Chicago presented a paper at the recent annual meeting of the American Society for Testing Materials in which he describes very conclusive and practical methods for testing the wearing quality of concrete when used for the wearing surface of roads.

The method of procedure consists of making a large number of test pieces, using the proposed proportions of Portland cement and aggregates as is designed to use in the road material. Several different mixtures and proportions may be made up in order to get a comparison of the wear. In fact, all available aggregate materials in the vicinity of the road to be built can be represented by test pieces in various combinations so as to compare the wear of the various aggregates before using.

For test pieces, Prof. Abrams uses concrete blocks eight inches square and five inches thick. As the blocks weigh approximately thirty pounds each the test is severe enough to represent very well the wear of road surface service.

The Talbot-Jones rattler used for this test consists of placing a drum of the test pieces using wooden struts between each pair of pieces to give the approximate circle. When so "set up" the drum is firmly clamped together by means of steel bands fastened with drawhead bolts. Ten specimens of concrete are used in this way at one time. Two hundred pounds of cast iron spheres are placed inside of the drum, which is closed by means of clamping devices, and the drum made to spin so that the cast iron balls strike, rub, roll and grind together against the inside portion of all the blocks forming the drum.

Prof. Abrams claims for the method so developed the following advantages:

1. The concrete is subjected to a treatment which approximates that of service.
2. The test piece is at round form and of sufficient size that representative results can be obtained.
3. The test pieces are convenient to make, store and handle and require a relatively small amount of concrete.
4. The cost of tests is not excessive.
5. The various and unusual types of numerous testing laboratories.
6. The wearing test takes place on the top or finished surface of the concrete. This makes it possible to study the effect of various surface treatments or finishes.

7. Several tests may be made at the same time, thus enabling more representative results to be obtained.

8. Tests may be made on sections of concrete cut from roads which have been in service.

9. Other paving materials such as brick, granite blocks, etc., may be tested in the same way as the concrete.

"Hit the Trail"—Buy a Victory Loan Bond

Promoting the Flow of Concrete in Pipes

In the \$3,500,000 Twin Peaks tunnel, San Francisco, the contractors, R. T. Storrie & Co., have been successful in conveying concrete 2,600 feet through an 8-inch pipe by the pneumatic placing process which will soon be extended to a distance of 4,000 feet or more.

This concrete is mixed with hydrated lime added for a lubricant which acts through its ability to hold water and prevents segregation, thus allowing the concrete to be mixed better than would otherwise be satisfactory.

In a recent letter to Pierre N. Beringer, publicity manager of the Ransome Concrete Machinery Company, M. M. O'Shaughnessy, city engineer of San Francisco, under whose direction the tunnel is constructed, says: "I believe the conveyance of concrete by pipe is a great achievement and the interesting part of the work is that it carries uphill on a 3 per cent. grade better than on the down grade. The reason for this, I presume, that the material acts like a wad in a gun and is pushed forward in a mass on the uphill grade, whereas on the downhill grade it is scattered."

"Experiment at other points in the mixing and placing by the use of pneumatic machinery has demonstrated the value of the use of hydrated lime beyond a doubt, both as an aid in reducing friction in transit of the aggregates as well as improving the quality as to waterproofing."

A letter from Charles A. Erbach, secretary to Geo. P. Cullen, contractor for the concrete operating houses of the Belmont Avenue Bridge, Chicago, says that the walls of the structure were of ornamental reinforced concrete containing about 200 cubic yards of concrete mixed with one bag of cement, 2 cubic feet of sand, four cubic feet of 1/4-inch crushed limestone, and 10 pounds of hydrated lime.

The forms, only 6 inches wide, were so much obstructed by the expanded metal and steel reinforcement members that there was very little room for spading the concrete, and the contractors feared that the concrete would be honeycombed, spotted and discolored and containing voids as in a former job of similar nature.

To prevent this, hydrated lime was added to the concrete mixture and a clean white wall free from rough spots was produced. The concrete flattened out so easily in the forms that no spading was required or attempted.

The hardened concrete gave out a clear, ringing sound and brought out the beauty of the design. When finished the cost was found to be lower than on previous jobs of similar character.

In his opinion the value of hydrated lime in concrete is that it should be used on all concrete work. The effect it has on the finished concrete is so convincing, the labor it saves so great, and the cost so small, that he considers it indispensable to contractors and engineers alike.

News From Coast to Coast

Building Material Dealers' Associations of Greater Winnipeg*

Before 1914 the building material dealers were not in the habit of discussing matters together affecting the trade generally, and in consequence there was a want of that friendly feeling and competition among members, which go so far to render business both pleasant and profitable.

On January 20th of that year, representatives of the various firms of Winnipeg connected with the trade met together in the Builders' Exchange and formed themselves into the "Building Material Dealers' Section," the idea at that time being that they should form a section of the Retail Merchants Association of Canada.

On the motion of Mr. J. E. Braid, the present president of the Association, Mr. S. S. Smith, of the Lake Winnipeg Shipping Co., was elected to the chair, and Mr. T. C. Anderson acted as secretary. Mr. Smith, I regret to say, was killed in action "Somewhere in France," while serving with his regiment the Princess Pats, early this year, and Mr. Anderson is also overseas.

Various meetings were thereafter held until the 26th of February, 1914, when the present secretary was appointed. At this meeting the Constitution and By-laws of the section were discussed and adopted, sixteen firms being represented.

At a general meeting held on March 3, 1914, the office bearers were elected, the chairman being Mr. W. P. Alsip, of the Alsip Brick, Tile & Lumber Co.; vice-chairman, Mr. J. A. Henderson, of The Winnipeg Supply & Fuel Co.; treasurer, Mr. J. E. Braid, of Braid & McCurdy, the present president, and secretary Rowley Jex-Long.

It was thought advisable that special sub-sections should be appointed consisting of firms who were specially interested in any particular commodity, who might discuss any special conditions arising in connection with such commodity and report to the general body of the Association, thus saving a considerable amount of the time of the general body.

The Association continued to work harmoniously and a friendly feeling was created among the members who met periodically and discussed in an amicable manner matters in which they were mutually interested.

Credit Scheme to Protect Recognized Builders

It was felt for a considerable time that the credit system among builders and contractors in Winnipeg was in the most unsatisfactory state, mainly owing to the difficulty in ascertaining exactly how customers and prospective customers stood financially, and to whom they were indebted. Members in many cases being practically in the position of financiers, financing in many instances men of straw, who so soon as they

found their credit exhausted with one firm, simply switched their business over to some other firm who were willing to give them credit, the result being that finally the dealer was left in the lurch, the whole assets being swallowed up by some loan company, or party who had advanced cash which was mainly swallowed up in payment of wages and living expenses of the builder.

With the object of eliminating this most unsatisfactory state of affairs, a credit bureau in connection with



MR. ROWLEY JEX-LONG
Secretary Building Material Dealers' Association
of Greater Winnipeg

the Association was instituted, and it was also thought desirable that the Association should act as an independent body under the name of the "Building Material Dealers' Association of Greater Winnipeg."

How the Credit System Works

The credit scheme, while apparently somewhat elaborate, is in reality very simple, and through it any member may obtain information from the secretary as to what material any operator in Winnipeg is having, the amount of his purchases of such material, any given party, the amount of his indebtedness, and how he is in the habit of paying. Since the inauguration of this credit scheme it has been further extended so that any firm not paying by the last day of the month, succeeding delivery of goods, the secretary takes the matter in hand. In the event of the bill not being paid in 10 days the defaulting firm's name is placed upon the

*The Building Material Dealers' Association of Greater Winnipeg, Inc., was organized on January 20, 1914, with Mr. Braid as president and Mr. Jex-Long as secretary. The association has since that time been successful in its efforts to improve the credit system and to protect the interests of its members.

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

PRICES AT MONTREAL

| | |
|--------------------------------------|------------------|
| Board lumber | |
| 4 in. x 12 in., 8 to 14 ft. | \$35.00 |
| 4 in. x 12 in., 16 ft. | 36.00 |
| 2x4 in. to 2x12 in., 18 ft. | 38.00 to \$40.00 |
| No. 1 hemlock, No. 1 | 38.00 |
| No. 1 hemlock, decking | 34.00 to 39.00 |
| No. 2 hemlock dimensions and 1 in. | 29.00 to 33.00 |
| Pine | |
| 1 in. common, and better pine | |
| 8 to 12 in. wide, rough | 42.00 to 50.00 |
| 2 in. white pine, mill stock | 42.00 to 52.00 |
| 7 1/2 x 8 and 10 in. pine shelving | 51.00 to 62.00 |
| 7 1/2 x 12 in. pine shelving | 70.00 |
| No. 1 white pine flooring | 50.00 |
| No. 1 spruce flooring | 46.00 |
| No. 1 pine decking D.S. | 48.00 |
| No. 1 pine V or beaded sheeting | 55.00 |
| No. 2 pine V or beaded sheeting | 47.00 |
| Paints, for paint finish— | |
| 1 in. casing, per 100 ft. | 3.00 |
| 5 in. casing, per 100 ft. | 4.00 |
| 8 in. pine base, per 100 ft. | 5.50 |
| 10 in. pine base, per 100 ft. | 7.50 |
| 4 in. pine window stool, per 100 ft. | 3.75 |
| Shingles, lath, roofing, etc.— | |
| No. 1 pine lath | 6.50 |
| No. 2 pine lath | 6.00 |
| No. 1 spruce lath | 5.50 |
| XXX B.C. shingles | 4.25 |
| Roofing felt paper, per roll | .05 |
| 5 in. at small end, per ft. | .07 |
| 7 in. at small end, per ft. | .07 |

| | |
|-------------------------------|-------------|
| Hardwood | |
| Nails, wire, common, base | 5.50 |
| Nails, cut, common, base | 5.70 |
| Softwood, cut, common, base | 3.10 |
| Tarred felt paper, per roll | .75 to 1.25 |
| Brick, tile, terra cotta, | |
| No. 1 dry pressed red bricks | 18.00 |
| No. 1 dry pressed buff bricks | 21.00 |
| 4 in. stock bricks | 15.00 |
| Grey stock bricks | 14.00 |
| Sewer pipe, 4 inch, per ft. | .12 1/2 |
| Sewer pipe, 6 inch, per ft. | .20 |
| Cement, plaster, stone, etc.— | |
| Cement (bags extra) car lots | 2.80 |
| Mortar, color, bbl. | 6.50 |
| Crushed stone, 2 in. | 1.50 |
| Crushed stone, 1 in. | 1.65 |
| Crushed stone, 3/8 in. | 1.65 |
| Hardwall plaster, per ton | 14.00 |
| Sanded | 8.00 |
| Gravel, per ton | .95 to 1.20 |
| Hair (plaster), per lb. | .15 |

PRICES AT TORONTO

| | |
|------------------------------------|--------------------|
| Board lumber | |
| 4 in. x 12 in., 8 to 14 ft. | \$36.00 to \$37.00 |
| 4 in. x 12 in., 16 ft. | 37.00 |
| 2x4 in. to 2x12 in., 18 ft. | 38.00 to 40.00 |
| No. 1 hemlock, No. 1 | 38.00 |
| No. 1 hemlock, decking | 34.00 to 39.00 |
| No. 2 hemlock dimensions and 1 in. | 29.00 to 33.00 |
| Pine | |
| 1 in. common, and better pine | |
| 8 to 12 in. wide, rough | 42.00 to 50.00 |
| 2 in. white pine, mill stock | 42.00 to 52.00 |
| 7 1/2 x 8 and 10 in. pine shelving | 51.00 to 62.00 |
| 7 1/2 x 12 in. pine shelving | 70.00 |
| No. 1 white pine flooring | 50.00 |
| No. 1 spruce flooring | 46.00 |
| No. 1 pine decking D.S. | 48.00 |
| No. 1 pine V or beaded sheeting | 55.00 |
| No. 2 pine V or beaded sheeting | 47.00 |

| | |
|--------------------------------------|----------------|
| Pine decking, D.S. | 44.00 to 53.00 |
| Spruce decking | 38.00 to 46.00 |
| No. 1 pine V or beaded sheeting | 58.00 to 60.00 |
| No. 2 pine V or beaded sheeting | 47.00 to 48.00 |
| No. 1 Common long leaf yellow pine— | |
| 2x4 in. to 2x12 in., 10 to 16 ft. | 50.00 to 54.00 |
| 2x4 in. to 2x12 in., 18 to 20 ft. | 50.00 to 54.00 |
| 2x4 in. to 2x12 in., 22 to 24 ft. | 52.00 to 57.00 |
| Yellow pine finish— | |
| 4/4 x 6, 8, 10 and 12 B. & B. | 68.00 to 72.00 |
| 5/4 x 6, 8, 10 and 12 B. & B. | 73.00 to 77.00 |
| 6/4 x 6, 8, 10 and 12 B. & B. | 73.00 to 77.00 |
| 8/4 x 6, 8, 10 and 12 B. & B. | 73.00 to 77.00 |
| 4/4 x 6, 8, 10 and 12 B. & B. | 68.00 to 72.00 |
| 5/4 x 6, 8, 10 and 12 B. & B. | 73.00 to 77.00 |
| 6/4 x 6, 8, 10 and 12 B. & B. | 73.00 to 77.00 |
| 8/4 x 6, 8, 10 and 12 B. & B. | 73.00 to 77.00 |
| Pine trim for paint finish— | |
| 4 in. casing, per 100 ft. | 2.75 to 3.25 |
| 5 in. casing, per 100 ft. | 3.25 to 4.75 |
| 8 in. pine base, per 100 ft. | 4.75 to 6.00 |
| 10 in. pine base, per 100 ft. | 6.00 to 8.00 |
| 4 in. pine window stool, per 100 ft. | 4.00 to 4.50 |

Hardwood trim, flooring, etc.—
Quotations will be given on request.
See editor's note above.

| | |
|--|--------------|
| Shingles, lath, roofing, etc.— | |
| XXX B. C. cedar shingles, per M. | 5.50 |
| N. B. extras | 5.50 |
| No. 1 pine lath, per M. | 7.00 |
| No. 2 pine lath | 6.50 |
| No. 1 spruce lath | 6.00 |
| Roofing: | |
| 1 ply, per sq. | 1.25 to 1.90 |
| 2 ply, per sq. | 1.50 to 2.50 |
| 3 ply, per sq. | 1.75 to 3.00 |
| Cedar posts—fence— | |
| 5 in. at small end, each | .80 |
| 7 in. at small end, each | .60 |
| Hardware— | |
| Nails, wire, common, cwt. | 5.45 |
| Nails, cut, common | 5.80 |
| Sash weights, cast iron (solid) .. | 2.85 |
| Tarred paper, roll | .75 to 1.25 |
| Bandaging paper, plate | 1.20 |

C. O. D. list, of which all members are advised, such name cannot be removed from the list unless application is made to the secretary, who satisfies himself as to whether such shall be reinstated or not.

As there are some 5,000 names, concerning whom most accurate records are kept in the bureau, it will readily be seen that it is very difficult for any unreliable firm to obtain credit, and overdue accounts or bad debts are of comparatively rare occurrence.

Some time after the retail lumber merchants and glass dealers in Winnipeg requested the Association to handle their combined interests, so that you will readily understand that the information in the possession of the "Building Material Dealers' Association of Greater Winnipeg," is of a very full and comprehensive nature.

All members are now agreed that had the present Association existed under its present form many years ago, much money would have been saved and many "men of straw" would not have been bolstered up at the expense of too confiding dealers.

In conclusion, I can only make the suggestion to dealers in other centres outside Winnipeg, who have not protected themselves in some such way, "Go thou and do likewise."—Rowley Jex-Long, secretary, Building Material Dealers' Association of Greater Winnipeg.

Buy a Victory Loan Bond

N.B.M.A. to Meet at Indianapolis

The National Brick Manufacturers' Association is to meet at Indianapolis, Ind., U.S., February 3 to 9, 1918. The headquarters will be at the Claypool Hotel,

where there are ample facilities for such a convention. F. Salmen is president, and T. A. Randall, Indianapolis, secretary.

"Hit the Trail"—Buy a Victory Loan Bond

Clay Products Manufacturers' Convention

The Canadian National Clay Products Association will hold their annual convention at the Prince George Hotel, Toronto, Tuesday, Wednesday and Thursday, January 29, 30 and 31, 1918.

The Executive have already arranged for a number of excellent papers and addresses, announcement of which will be made later. These will cover fully many of the problems met in the clay products industry.

"Hit the Trail"—Buy a Victory Loan Bond

BOOK REVIEW

"First Aid" Wall Charts—By Edward C. Ibotson, M.B., M.S., London. Printed on cardboard, 18 ins. by 19 ins., with strings to hang on wall. Published by the MacMillan Co., of Canada, Limited, St. Martin's House, Bond St., Toronto. Price 50c net for the set of four, post free.

The form charts are as follows: 1, Emergencies, Accidents and Poisoning; 2, Fractures, Dislocations and Sprains; 3, Wounds and Hemorrhage; 4, Insensibility or Unconsciousness.

These charts will supplement "First-Aid to the Injured and Sick," by Drs. Warwick and Tunstall. They serve as instant reminders of what should be done in cases of emergency, and show at a glance, in the fewest possible words, the immediate steps to be taken.

The charts are very valuable and complete. They should be hung up in factories, mines, schoolrooms, on board vessels which carry no surgeon, and in all places where emergencies are likely to arise.

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| Hydrated lime in paper bags (40 lbs.)— | |
| Bags included in price, but not returnable. | |
| Delivered | Per ton |
| F.O.B. yard | \$16.35 |
| F.O.B. cars, city | 15.45 |
| Hydrated lime in cotton bags—(100 lbs.), | |
| bags included in price. | |
| Delivered | Per ton |
| F.O.B. yard | \$19.55 |
| F.O.B. cars, city | 18.65 |
| Sacks returnable 20c each. | |
| Portland cement in bags— | Per bbl. |
| Delivered | \$4.00 |
| F.O.B. yard | 3.90 |
| F.O.B. cars, city | 3.70 |
| Note—Four sacks make a barrel, 350 lbs. | |
| Mortar cement in bags— | Per bag |
| Delivered | \$.64 |
| F.O.B. yard | .62 |
| F.O.B. cars, city | .54 |
| Note—1 sack mortar cement weighs 70 lbs. | |
| Delivered in ton lots; less than ton lots 50c extra. | |
| Best Bros. Acme and No. 1 Keenes | |
| cement in bags— | Per bag |
| Delivered | \$2.50 |
| F.O.B. yard or cars, city | 2.25 |
| Empire Keenes cement in 100 lb. bags— | |
| Delivered | 2.15 |
| F.O.B. yard or cars, city | 2.00 |
| Note—a sack contains 100 lbs. gross. | |
| Fine Keenes cement in bags— | |
| (3 sacks per bbl.) | |
| Delivered | Per bbl. |
| F.O.B. yard or cars, city | \$11.10 |
| Superfine Keenes cement in bags— | |
| (3 sacks per bbl.) | |
| Delivered | 13.55 |
| F.O.B. yard or cars, city | 12.70 |
| Gypsum in bags— | Per ton |
| Delivered | \$13.00 |
| F.O.B. yard | 12.00 |
| F.O.B. cars, city | 11.55 |
| Hardwall plaster Nos. 1 and 2, wood | |
| fibre plaster, ivory finish, gold dust | |
| finish, (in bags)— | Per ton |
| Delivered | \$19.00 |
| F.O.B. yard | 18.00 |
| F.O.B. cars, city | 17.75 |
| Empire finish plaster, Peerless prepared | |
| finish, Sinite finish plaster (in | |
| bags)— | |
| Delivered | \$22.50 |

| | |
|--|-----------------|
| F.O.B. yard | 21.50 |
| F.O.B. cars, city | 21.00 |
| Plaster of paris and Stucco (in bags)— | |
| Delivered | 20.50 |
| F.O.B. yard | 19.75 |
| F.O.B. cars, city | 19.50 |
| Note—20 sacks make 1 ton gross. | |
| Delivered in ton lots; less than ton lots 50c extra. | |
| Plaster of paris in barrels— | |
| (Price includes barrels.) | Per bbl. |
| Hammer Brand, 320 lbs. gross | \$4.40 |
| Empire and Peerless, 250 lbs. gross | 3.30 |
| Plasterers' hair— | |
| Per bale | \$3.30 |
| Per bush | .90 |
| Mortar color— | Per 100 lbs. |
| Red | \$4.50 |
| Black | 5.50 |
| Buff | 5.50 |
| Chocolate | 6.50 |
| Drain tile— | |
| 3 in. delivered or at yard, each | \$.05 1/2 |
| 4 in. delivered or at yard, each | .07 |
| Each tile is one foot long. | |
| Wood lath— | |
| No. 1 delivered, per M. | \$6.00 |
| No. 2 delivered, per M. | 5.25 |
| Gypsum fibre— | Per M. ft. |
| 1/4 in. x 32 x 36— | |
| Delivered | \$32.25 |
| F.O.B. yard | 27.20 |
| F.O.B. cars, city | 26.15 |
| 1/4 in. x 32 x 48 and 60— | |
| Delivered | 33.00 |
| F.O.B. yard | 28.60 |
| F.O.B. cars, city | 27.25 |
| 1/2 in. x 32 x 36 and 48 and 60— | |
| Delivered | 36.30 |
| F.O.B. yard | 32.70 |
| F.O.B. cars, city | 30.80 |
| 1/2 in. x 32 x 36 and 48 and 60— | |
| Delivered | 41.50 |
| F.O.B. yard | 37.00 |
| F.O.B. cars, city | 35.00 |
| Note—If delivered in more than 2,000 feet | |
| lots, \$2.00 per M. less. | |
| Plaster blocks— | Per 100 sq. ft. |
| 3 in. hollow tile— | |
| Delivered or F.O.B. yard | \$ 8.55 |
| F.O.B. cars, city | 7.25 |
| 4 in. hollow tile— | |
| Delivered or F.O.B. yard | 10.00 |
| F.O.B. cars, city | 8.20 |

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|--|---------|
| 6 in. hollow tile— | |
| Delivered or F.O.B. yard | 13.55 |
| F.O.B. cars, city | 11.50 |
| 2 in. furring tile— | |
| Delivered or F.O.B. yard | 6.30 |
| F.O.B. cars, city | 5.20 |
| 2 in. solid tile— | |
| Delivered or F.O.B. or F.O.B. yard | 8.55 |
| F.O.B. cars, city | 7.25 |
| Fire clay— | |
| Delivered or F.O.B. yard, per 100 lbs. | 1.00 |
| Fireclay (Canadian)— | |
| Delivered, per M. | \$70.00 |
| F.O.B. yard | 67.50 |
| F.O.B. cars | 65.00 |
| In quantities less than 1M, 7 1/2 c each. | |
| Fire brick—(American) | Per M. |
| Delivered | \$90.00 |
| F.O.B. yard | 87.50 |
| F.O.B. cars, city | 82.50 |
| Less than M. delivered, per 100 | 9.50 |
| Special prices on fire blocks and specials on application. | |

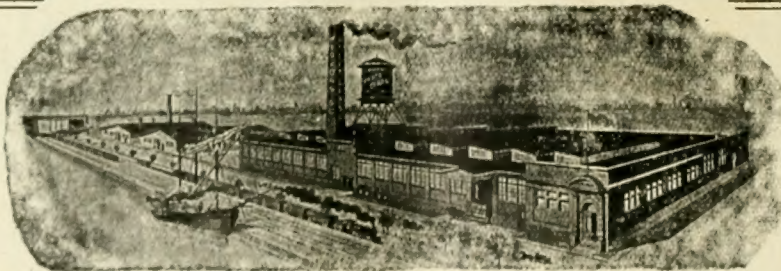
PRICE AT VANCOUVER

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|--------------------------------|----------------|
| Shingles, lath, etc.— | |
| XXX B. C. cedar shingles, per | |
| M. | \$ 3.15 |
| No. 1 pine lath, per M. | 2.35 to 2.65 |
| Brick, tile, terra cotta, | |
| sewer pipe— | |
| No. 1 dry pressed red bricks, | |
| per M. | 30.00 to 45.00 |
| No. 1 dry pressed buff bricks, | |
| per M. | 40.00 to 45.00 |
| Red stock bricks | 14.50 |
| Fire brick | 40.00 |
| Fireclay, per ton | 12.50 |
| Sewer pipe, 4 inch, per ft. | 12 1/2 |
| 6 in., per ft. | .21 |
| 8 in., per ft. | .30 |
| 10 in., per ft. | .40 |
| 12 in., per ft. | .50 |
| Cement plaster, stone, etc.— | |
| Cement, Portland (bags extra), | |
| per bb. | 2.45 |
| Keene cement, per ton | 32.00 |
| Lime, per bbl. | 1.50 |
| Hydrated lime, per ton | 14.00 |
| Alca Lime, per ton | 16.00 |
| Plaster of paris, per bbl. | 4.50 |
| Hardwall plaster, per ton | 15.50 |

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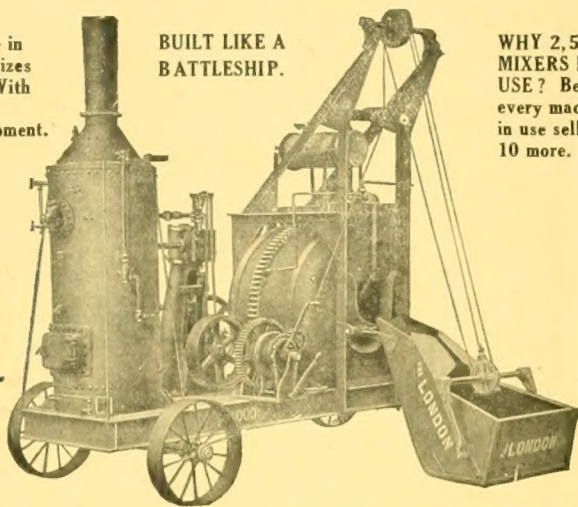
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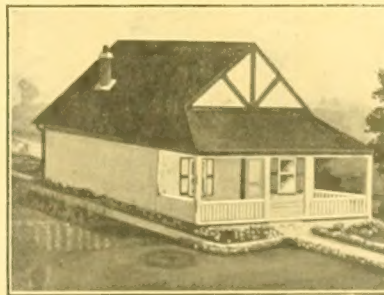
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